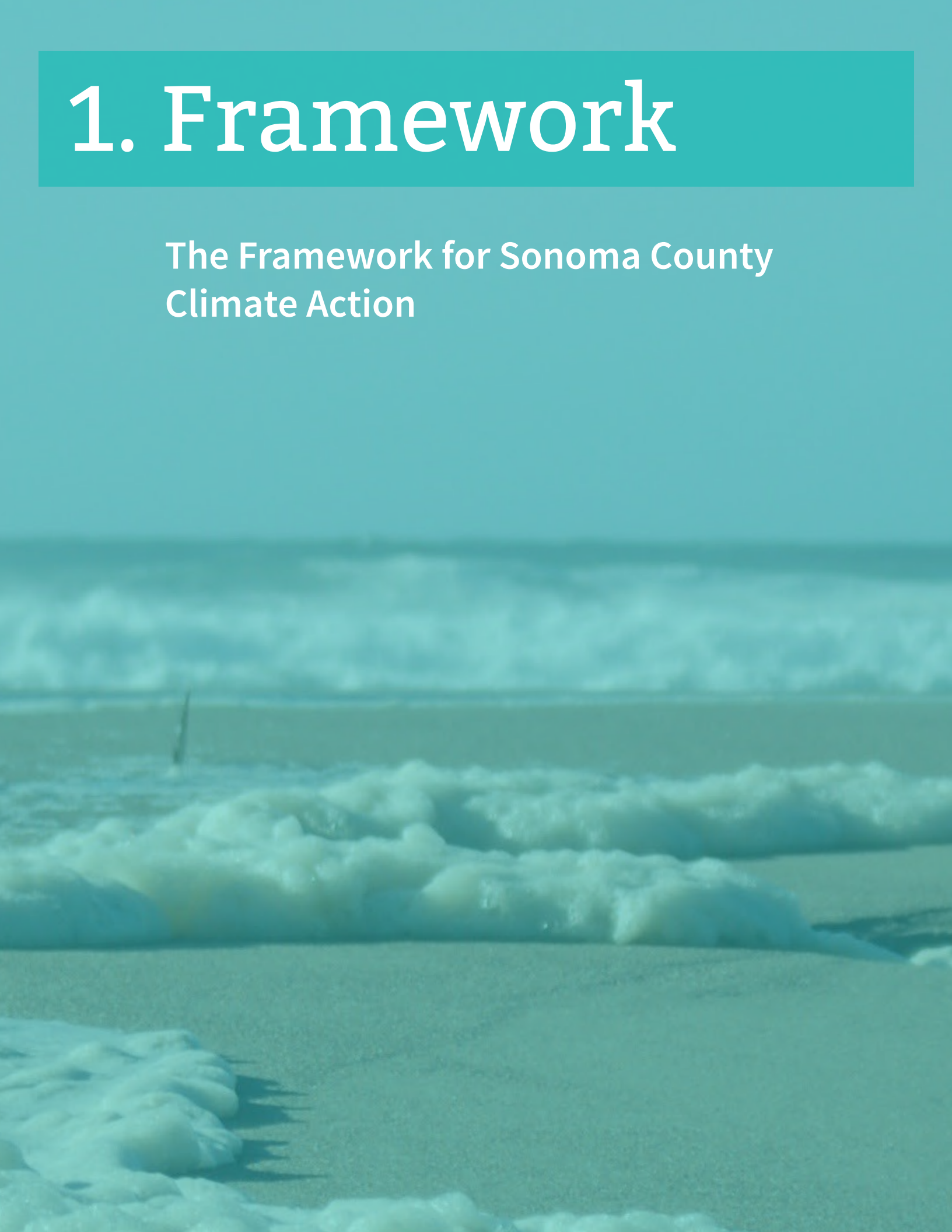
1. Framework

The Framework for Sonoma County Climate Action



Chapter 1
The Framework for Sonoma County Climate Action

1.1 Introduction

Human-induced climate change is a global challenge that demands action at every level, including local government. Sonoma County communities are established leaders in locally based efforts to combat global climate change, and this Climate Action Plan takes another step forward as local governments and regional agencies commit to concrete actions that will further reduce countywide greenhouse gas (GHG) emissions and create a better future for Sonoma County. These local actions will combine with state and regional actions to reduce community GHG emissions to 25% below 1990 levels by 2020 and make substantial progress toward even greater reductions beyond 2020. These local actions will also advance many other community priorities such as economic resilience, public health, water efficiency, air quality, and overall quality of life.

1.2 A Call to Action

1.2.1 Climate Change Is a Serious Threat, But We Know What to Do

Sonoma County has long recognized the need for local action to help meet the global challenge of climate change. The first phase of local climate action included all nine cities and the County setting a goal of reducing GHG emissions by 25% (compared to 1990 levels) by 2015. Although that ambitious goal was not accompanied by a formal plan, local leaders took initial actions that have made real progress toward reducing countywide GHG emissions, including a community climate action plan prepared by the community-based Center for Climate Protection and local government programs like Sonoma Clean Power (SCP) and the Sonoma County Energy Independence Program. *Climate Action 2020* (CA2020) begins a new phase of local climate action by updating the countywide GHG reduction goal and focusing on near-term actions that will be implemented through 2020. These actions will substantially reduce emissions in the short term and put Sonoma County on a solid trajectory to achieve deeper GHG reductions that will be needed to meet the goal of reducing emissions by 80% by 2050. After 2020, another phase of local climate action planning will be needed to continue and expand the actions in CA2020 and to explore new strategies to meet longer-term GHG reduction goals.

Climate Change Science: A Primer

Although changes in global climate have been recorded throughout history, there is strong consensus among the scientific community that recent changes are the result of GHG emissions created by the burning of fossil fuels and other human activity. The International Panel on Climate Change (IPCC), in its 2014 assessment, observed that human influence on the climate system is clear, and recent increases in GHGs emissions are the highest in history. Each of the last three decades has been successively warmer at the Earth's surface than any preceding decade since 1850.

According to the IPCC:

> Anthropogenic (man-made) greenhouse gas emissions have increased since the pre-industrial era, driven largely by economic and population growth, and are now higher than ever. This has led to atmospheric concentrations of carbon dioxide, methane (CH_4), and nitrous oxide (N_2O) that are unprecedented in at least the last 800,000 years. Their effects, together with those of other anthropogenic drivers, have been detected throughout the climate system and are extremely likely to have been the dominant cause of the observed warming since the mid-20th century.

Even a relatively small increase in global temperatures can dramatically affect human and natural systems. According to the IPCC, "an increase in the global average temperature of 2°C (3.6°F) above pre-industrial levels, which is only 1.1°C (2.0°F) above present levels, poses severe risks to natural systems and human health and wellbeing." The warming climate is directly related to the amount of GHG in the atmosphere, typically expressed in terms of parts per million (ppm) of carbon dioxide equivalent (CO_2e). Many have called for stabilizing atmospheric GHG concentrations at 450 ppm CO_2e (California Air Resources Board 2014b). However, with GHG concentrations now at or above 479 ppm CO_2e, natural systems and human health and wellbeing are already at high risk (National Oceanic and Atmospheric Administration 2014). Here in Sonoma County, those risks include increased flooding, wild land fires, and economic disruption.

To have an even chance of stabilizing GHG concentrations at 450 ppm CO_2e, global GHG emissions would have to decline by about 50% (compared with 2000 levels) by 2050. Given a more limited capacity to reduce emissions in developing countries, stabilizing at 450 ppm CO_2e will require industrialized countries, including the United States, to reduce their emissions by approximately 80% below 1990 levels by 2050.

Strong action is needed to avoid serious damage to human wellbeing and natural systems. Individuals and communities need to determine how much and how fast they are willing to change energy use and implement other actions to achieve long-term GHG reductions.

Discussions about human-induced climate change often focus on the role of carbon. This is because carbon dioxide (CO_2) is the primary GHG emitted through human activities and accounts for about 82% of all U.S. GHG emissions. Therefore, terms like "atmospheric carbon," "carbon-neutral," or "low-carbon" are often heard in climate change discussions. However, human influence on the climate is actually driven by six primary gases, including CO_2. These gases each have different potential to trap heat and remain in the atmosphere (expressed as Global Warming Potential, or GWP). For example, whereas CO_2 has a GWP of 1, nitrous oxide (N_2O) has a GWP of

265. This means that, pound for pound, N_2O is 265 times more powerful as a global warming agent than CO_2. But because there are far more CO_2 emissions than N_2O emissions, CO_2 is still the greatest GHG concern overall. See Table 1.2-1 for a comparison of global warming potential from the six GHG gases.

Table 1.2-1. Principal GHG Emissions

Greenhouse Gas	Primary Emissions Sources	Global Warming Potential (GWP)[a]	Atmospheric Lifetime (years)	Atmospheric Abundance
Carbon Dioxide (CO_2)	Burning of fossil fuels Gas flaring Cement production Land use changes (reducing the amount of forested land or vegetated areas) Deforestation	1	50–200	394 ppm
Methane (CH_4)	Agricultural practices Natural gas combustion Landfill outgassing	28	12.4	1,893 ppb
Nitrous Oxide (N_2O)	Agricultural practices Nylon production Gas-fired power plant operations Nitric acid production Vehicle emissions	265	121	326 ppb
Perfluorinated Carbons (CF_4, C_2F_6)	Aluminum production Semiconductor manufacturing	6,630–11,100	10,000–50,000	4.2–79.0 ppt
Sulfur Hexafluoride (SF_6)	Power distribution Semiconductor manufacturing Magnesium processing	23,500	3,200	7.8 ppt
Hydrofluorocarbons (HFC-23, HFC-134a, HFC-152a)	Consumer products (aerosol sprays, such as air fresheners, deodorants, hair products, etc.) Automobile air-conditioners Refrigerants	138–12,400	1.5–222	3.9–75 ppt

Notes:

[a] GWPs listed here are 100-year values without carbon-climate feedbacks.

ppm = parts per million

ppb = parts per billion

ppt = parts per trillion

Sources: Intergovernmental Panel on Climate Change 2013; Blasing 2014.

To provide a consistent framework, GHG emissions are usually quantified in terms of metric tons (MT) of CO_2e per year, which accounts for the relative warming capacity of each gas. All GHGs in the emissions inventory and reduction measures are presented in terms of $MTCO_2e$. For more information on the latest climate science and IPCC research, visit http://www.ipcc.ch.

Sonoma County Must Reduce Greenhouse Gas Emissions

Based on projections from the 2010 GHG inventory, Sonoma County is not expected to meet the 2015 goal of 25% below 1990 levels. Furthermore, the county's population is projected to increase by 5% between 2010 and 2020, and employment is projected to increase by 13% over the same period. Population and economic growth are the main factors influencing the growth of GHG emissions.

Simply put, without additional actions, GHG emissions in 2020 and beyond will not be reduced and could increase because of continued population and economic growth. Therefore, the primary goal of CA2020 is to grow smarter by ***reducing*** countywide GHG emissions to a level that is 25% below 1990 emissions by 2020, a target that is well beyond that established in current state law (Assembly Bill 32; see discussion of state regulatory framework in Section 1.2.2, below). This target will be met by combining the new actions described in this Climate Action Plan (CAP) with ongoing efforts already underway and working to achieve reductions in a thoughtful and coordinated manner.

In addition to the near-term emission-reduction goal for 2020, CA2020 also includes longer-term goals of reducing emissions by 40% (compared to 1990) by 2030 and by 80% by 2050, which will necessitate another phase of local climate action planning and implementation after 2020. Although the measures contained in this CAP will endure and continue to reduce emissions beyond 2020, even greater effort will be needed to reach the goals for 2030 and 2050. Specific actions needed after 2020 will be heavily influenced by the changes in technology, regulatory mandates, and behavior that will inevitably occur by 2020. An update to CA2020 is therefore included in the implementation plan.

Adapting to Climate Change and Building Resilient Communities

Actions taken to reduce GHG emissions are commonly referred to as *climate mitigation* and are the foundation of climate change response; minimizing the extent of climate changes is the most certain way to ensure that communities can respond to them. However, climate-related changes to natural and human systems cannot be avoided entirely. Sonoma County is already experiencing some of these effects, including higher temperatures and more variable rainfall, which results in increased flooding in some years and drought in others. Actions that reduce the community's vulnerability to these and other climate change hazards are collectively referred to as *climate adaptation*. Adaptation is a fundamental part of the County's overall climate action program and necessary to build community resilience. While climate mitigation and adaptation have different objectives, many strategies can be used to simultaneously achieve both goals.

Chapter 6, *Sonoma County Climate Readiness*, provides a vulnerability assessment that screens potential climate hazard impacts on three key community resource areas: people and social systems, built systems, and natural and working lands. This analysis provides a starting point for a countywide discussion on climate impacts and vulnerabilities. Strategies already underway to prepare for climate change are also discussed, along with recommendations to increase local climate change resilience. While the focus of CA2020 is on reducing local contributions to climate change, many strategies to reduce emissions will also help strengthen climate resilience. Measures that advance local resilience to climate impacts are identified in Chapter 3, *Reducing Community Emissions.*

Figure 1.2-1. Building Blocks of Climate Response

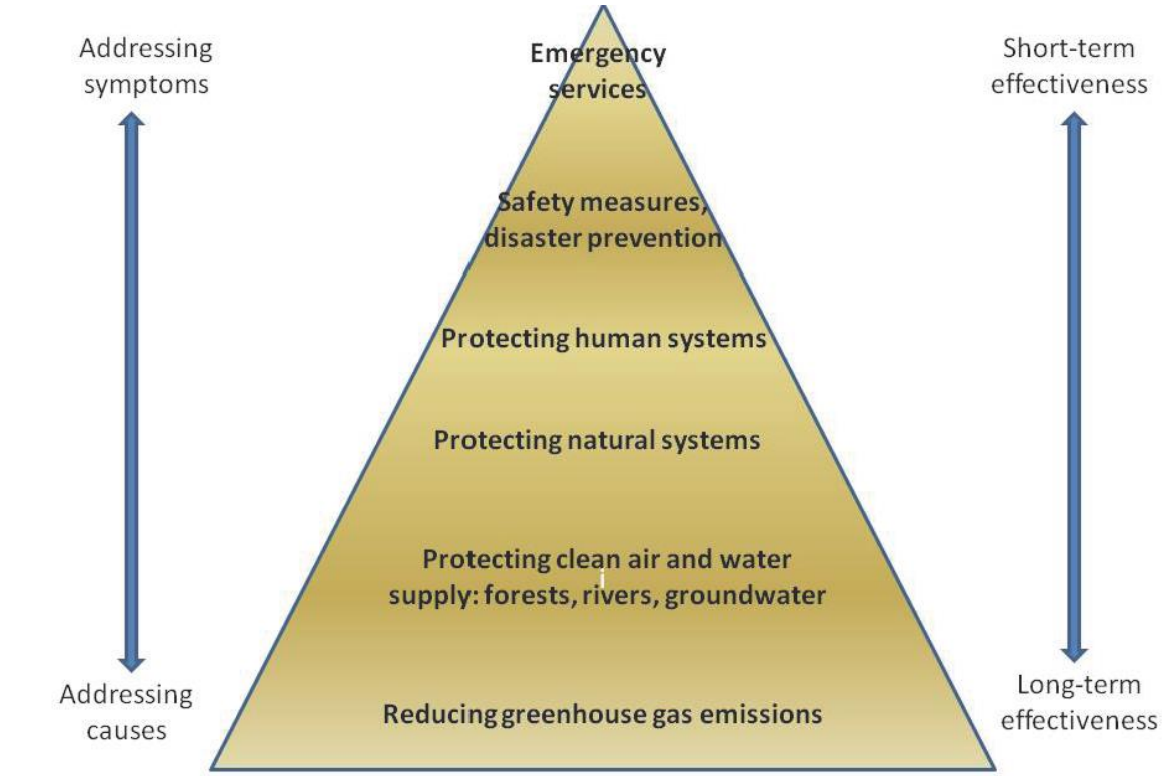


Figure 1.2-1 illustrates the building blocks of climate response. Again, stopping human contributions to climate change is the most important step to minimize the impact of climate change on communities.

1.2.2 Building on Existing Climate Action Efforts

The State of California and Sonoma County communities recognized the challenge of climate change and have already taken action to meet the GHG reduction imperative. The challenge is enormous, but Sonoma County is not starting from scratch. CA2020 builds on earlier efforts to chart a future that will dramatically reduce countywide GHG emissions.

State Leadership

California is a global leader in addressing climate change and reducing GHG emissions.

- In 2005, Governor Schwarzenegger signed Executive Order S-03-05 establishing a long-term goal of reducing GHG emissions by 80% below 1990 levels by 2050.[1]
- Enacted in 2006, Assembly Bill (AB) 32 requires statewide GHG emissions to be reduced to 1990 levels by 2020. The *AB 32 Scoping Plan* identifies specific measures for achieving this goal, including recommending that local governments establish GHG reduction goals for both their municipal operations and for the community, consistent with those of the state.
- In 2015, Governor Brown signed Executive Order B-30-15 establishing a medium-term goal of reducing GHG emissions by 40% below 1990 levels by 2030. The Governor's order requires the California Air Resources Board (ARB) to update its scoping plan to identify the measures needed to meet the 2030 target; that effort should be completed in late 2016.

In addition, the state has adopted key regulations that will help Sonoma County meet its regional emissions reduction goals.

- Renewables Portfolio Standard (RPS) – requires greater amounts of renewable energy in electricity generation throughout the state
- Pavley/Advanced Clean Car Program– requires higher gas mileage in new cars sold in California
- Low-Carbon Fuel Standard (LCFS) – requires a reduction in the GHG intensity in transportation fuels
- Cap-and-Trade Program – reduces overall emissions in the electricity generation and transportation fuel sectors

More information on these state regulations and their influence on Sonoma County emissions can be found in Chapter 3, *Reducing Community Emissions*, and in Appendix C.

Sonoma County Leadership

In Sonoma County, community leaders and forward-thinking elected officials in each city and in county government have worked together to establish strong action on climate change.

- **1990:** Voters approved a sales tax measure to create the Sonoma County Agricultural Preservation and Open Space District (SCAPOSD) to preserve agricultural and open space lands throughout the county. Voters overwhelmingly reauthorized the sales tax measure in 2006.

[1] Executive orders are binding only on state departments, not on the private sector or local governments. However, pending legislation (Senate Bill 32) would, if approved by the legislature and signed by the governor, adopt the target for 2030 into state law and give the ARB authority to adopt binding long-term GHG targets.

- **2001:** All Sonoma County communities committed to the International Council for Local Environmental Initiatives campaign called *Cities for Climate Protection*, an international initiative to reduce GHGs through local government action.
- **2005:** The elected leadership in all Sonoma County communities adopted a countywide GHG emissions reduction target of 25% below 1990 levels by 2015. The City of Cotati adopted an even more aggressive goal of 30% below 1990 levels by 2015.
- **2008:** A local community non-profit group, the Climate Protection Campaign (now known as the Center for Climate Protection), developed a Community Climate Action Plan, which was the first community-wide examination of strategies to reduce community-wide GHG emissions.
- **2008:** Voters in Sonoma (and Marin) County approved a local sales tax measure to fund development of passenger rail service, Sonoma-Marin Area Rail Transit (SMART).
- **2009:** Sonoma County jurisdictions established the nation's first Regional Climate Protection Authority (RCPA), a multi-jurisdictional agency tasked with coordinating countywide efforts to reduce GHGs and become more resilient to climate change. RCPA member jurisdictions and their partners have created and successfully pioneered innovative approaches to climate solutions including Property Assessed Clean Energy (PACE) financing, Pay As You Save (PAYS) on-bill repayment for resource efficiency, community choice aggregation, carbon-free water, electric vehicle infrastructure deployment, climate action through conservation, adaptation planning, and more.
- **2012:** The City of Santa Rosa was the first local government in the county to adopt its own CAP and a new GHG emissions target of 25% below 1990 levels by 2020.

Community leadership has resulted in direct actions by the citizens, businesses, and communities in Sonoma County to reduce GHG emissions. For example:

- All communities in the county (except Healdsburg, which has its own electric utility) now participate in the local Community Choice Aggregation program, SCP, which provides electricity with a higher renewable energy content than otherwise available. Healdsburg's municipal utility has provided electricity with a large renewable portfolio for many years.
- The County established a PACE program known as the Sonoma County Energy Independence Program to help property owners finance energy and water efficiency improvements. This program has reduced GHG emissions equal to taking 3,000 cars off the road and generated enough clean energy to power nearly 6,000 homes for a year.
- RCPA and jurisdictions county-wide support energy-efficiency efforts and solar retrofits through a variety of programs. Waste minimization, recycling, and composting programs are already an essential part of resource conservation in the county.
- The Sonoma County Water Agency is a leader in innovating low-carbon methods for delivering water supplies and conserving water. Sonoma County Water Agency reached its

goal of a carbon-free water delivery system in 2015, and is also a prominent supporter of energy conservation financing.

- Sonoma County is a center for sustainable wine growing and other sustainable agricultural practices.

By 2010, Sonoma County communities had reduced countywide GHG emissions to approximately 7% below 1990 levels, even while the county's population grew by 25% and employment grew by 17% between 1990 and 2010. On a *per capita* basis, county GHG emissions declined approximately 26% over the same period.

CA2020 builds on these existing programs and proposes additional measures that the communities can implement to achieve significant GHG emissions reductions within the county as a whole.

For a list of strategies that have already been implemented by each community, please refer to Chapter 5, *Community Greenhouse Gas Profiles and Emissions Reductions for 2020*.

1.2.3 How Will this Plan Help Sonoma County Residents and Businesses?

Reducing GHG Emissions Is No Longer Optional

Given the magnitude of human-induced climate change and the projected catastrophic effects from continued global warming, reducing GHG emissions has become an environmental and societal imperative. In response, GHG reduction mandates from the state and, increasingly, from the federal government will require local government action. In California, state legislation (AB 32) with a mandate to reduce GHG emissions to 1990 levels by 2020 is only the beginning; much sharper GHG reductions are needed to protect our environment, our health, and our economy from the potentially catastrophic effects of increasing global temperatures. CA2020 is intended to help Sonoma County communities respond to the climate change imperative as well as legal mandates.

Reducing GHG Emissions Is Good Business

Reducing GHG emissions will make Sonoma County businesses more efficient and will save money for residents and business owners. Weatherizing or adding solar to existing homes, for example, creates construction jobs and cuts residents' utility bills. When businesses increase energy efficiency or add on-site renewable energy generation, they reduce operating costs and employ electricians, engineers, builders, and plumbers. For example, a locally owned quarry (Mark West Quarry) recently hired a local solar energy company to install a solar array that will pay for itself in only seven years by cutting the company's energy bills in half. The Sonoma County Green Business Program recognizes and promotes businesses that operate in an environmentally responsible way, including reducing their carbon footprints. Sonoma County businesses are already exporting the products and services they develop to respond to climate change. For example, Petaluma-based Enphase has become a worldwide leader in micro-inverter technology

used in solar photovoltaic systems. As the world moves to a low-carbon economy and invests in climate-ready communities, Sonoma County businesses will reap the rewards of their leadership.

As described in more detail in Section 1.5, CA2020 will also facilitate a more streamlined environmental review process for future development projects that incorporate its GHG reduction measures.

Reducing GHG Emissions Supports Other Community Goals

Implementing CA2020 will result in environmental and community "co-benefits" that go beyond GHG emissions reductions. For example, many of the actions will improve public health by reducing air pollutants like ozone, carbon monoxide, and fine particulates. Measures to improve mobility and alternative modes of transportation will increase walking and biking, activities that substantially lower the incidence of disease. These changes can also complement and encourage other sustainable modes of transportation, including public transit.

The GHG reduction measures in this CAP create community co-benefits in a variety of ways.

- GHG reduction measures in the Building Energy and Transportation sectors will reduce electricity and gasoline usage, which can help lessen the impact of future energy cost increases on county businesses and residents.
- Reducing gasoline consumption also reduces dependence on foreign oil and the environmental impacts of oil exploration, production, and transportation.
- Recycling and waste diversion measures will also reduce material consumption and the need for landfill space.
- Water efficiency measures will reduce water use in a water-constrained future and adapts to the long-term hydrological effects of climate change.
- Land use measures in CA2020 will conserve natural resources and protect the long-term viability of natural and working landscapes in the county.
- Open space preservation also offers aesthetic and recreational benefits for community residents as well as habitat for native wildlife and plants.
- Sustainable agriculture and wine-making practices will help preserve agricultural soil fertility and protect water quality.

The measures in this CAP provide an opportunity to lower carbon emissions and achieve a diverse range of community co-benefits. Anticipated community co-benefits associated with CA2020 are listed in Table 1.2-2. Chapter 3*, Reducing Community Emissions*, provides additional information on the relevant co-benefits for each CAP sector and goals.

Table 1.2-2. Community Co-Benefits

Co-Benefit	Key	Description
Energy Savings		Measures to increase energy efficiency can reduce energy costs and lessen the impact of future energy price increases on county businesses and residents. Reducing petroleum and natural gas use through efficiency and fuel switching also reduce dependence on imported energy and the environmental impacts of fossil energy exploration, production, and transportation.
Air Quality Improvements		Measures to reduce or eliminate the combustion of fossil fuels can reduce local and regional air quality challenges caused by ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and particulate matter. These air pollutants cause damage to people, ecosystems, and infrastructure.
Public Health Improvements		Measures that improve air quality create benefits for public health, by reducing pollutants that irritate respiratory systems, exacerbate asthma, and affect the heart. Measures that increase use of active transportation and enhance public open spaces can improve health by encouraging walking, biking, and outdoor recreation.
Job Creation		Measures to retrofit buildings, build and operate local and distributed renewable energy systems, increase transit use, increase waste diversion, and other strategies that rely on local labor can create opportunities for the workforce and retain dollars to be reinvested in the local economy.
Resource Conservation		Recycling and waste diversion measures reduce material consumption and the need for landfill space. Water efficiency measures reduce water demand and preserve water resources. Land use measures conserve natural resources and protect the long-term viability of natural and working landscapes in the county. Open space preservation also offers aesthetic and recreational benefits for community residents as well as habitat for native wildlife and plants. Sustainable agriculture practices will help preserve agricultural productivity and ecological health.
Cost Savings		Many strategies to reduce emissions reduce waste by increasing efficiency, therefore reducing the costs to receive the same service (be that light, heat, water, or transportation). Many measures offer downstream cost savings in addition to direct utility or fuel cost savings, such as reduced health care costs, reduced need to invest in marginal water or energy supply, lower maintenance costs, etc.
Climate Resilience		Many strategies to reduce emissions also help prepare communities for local climate impacts by advancing the climate resilience goals adopted by the RCPA Board (see Chapter 6).

1.3 How Does This Plan Work?

1.3.1 A Regional Approach to Reducing GHG Emissions

Sonoma County communities have a long history of implementing and promoting initiatives to protect the environment and conserve natural resources. This tradition includes creation of the RCPA in 2009, the nation's first regional climate protection authority, in a move that recognized both the magnitude of the challenge and the cross-jurisdictional nature of climate change and

GHG emissions. If ever an issue called for a coordinated, multi-partner effort, it is climate change; progress depends on Sonoma County communities working together. The approach in CA2020 calls for coordinated local actions to achieve a regional target—reduce countywide GHG emissions to 25% below 1990 levels by 2020—including leveraging initiatives already underway at the state and regional (Bay Area) level. Long-term collaboration will also be needed to meet long-term goals.

A regional GHG reduction goal—as opposed to individual goals for each community—recognizes the shared nature of the challenge as well as the fact that Sonoma County communities each have a different capacity to achieve GHG reductions; smaller communities typically have fewer opportunities to achieve substantial GHG reductions.

Statewide GHG Reduction Efforts Have Local Impact

Statewide programs to reduce GHG emissions are a fundamental part of CA2020 and will deliver over 50% of the GHG emissions reductions needed to achieve the 2020 target. For example, the state's RPS will reduce the carbon content of electricity throughout the state, including Sonoma County, yielding over 180,000 $MTCO_2e$ in annual GHG reductions locally. The CAP reflects the impact of nine state measures that address issues related to the building energy and transportation sectors.

1. Title 24 Energy Efficiency Standards for Commercial and Residential Buildings (Title 24)
2. Lighting Efficiency and Toxics Reduction Act (AB 1109)
3. Industrial Boiler Efficiency
4. Renewables Portfolio Standard (RPS)
5. Residential Solar Water Heater Program (AB 1470)
6. Low Carbon Fuel Standard (LCFS)
7. Pavley Emissions Standards for Passenger Vehicles
8. Advanced Clean Cars
9. Vehicle Efficiency Measures in AB 32

Local Government and Regional Agency Action

Although state programs are essential to meeting Sonoma County's HG reduction goal, they will not be enough to reach that goal by themselves. Action by local governments and regional agencies—the entities that control land use, infrastructure, and community services—is critical. It will take the full combined efforts of local governments and regional initiatives, together with state programs, to reach the County's GHG reduction goal. **Together, CA2020 measures will promote building energy efficiency and renewable energy production, support alternative modes of transportation, enhance open spaces, and help reduce water consumption and waste generation.**

The GHG reduction measures in this CAP were selected after a comprehensive review of potential measures and after local community outreach meetings and workshops and consultation with a Stakeholder Advisory Group (see Section 1.4). Measures recommended by the California Attorney General and the California Air Pollution Control Officers Association were considered. In addition, adopted CAPs from throughout California, each local community's general plan and local policies and programs, and comments collected at meetings in each community were also reviewed to develop the measures. Many of the measures in CA2020 build on local community initiatives that are already underway, including local measures required under state law, like implementation of the CalGreen building codes and adoption of local water-efficient landscape ordinances. Other measures provide new opportunities for addressing climate change. Existing policies and measures are summarized in Chapter 5, *Community Greenhouse Gas Profiles and Emissions Reductions for 2020*.

This CAP identifies 14 GHG reduction measures for local agency implementation (see Section 1.3.2). Each city and the County reviewed the local measures and selected those to include in their community's commitments. Thus, the specific combination of measures implemented in each community will vary. Although no community will implement all 14 local measures and sub-components, the individual commitments from each community combine into a comprehensive GHG emissions reduction program that will help the county achieve its countywide goal.

Some of the local measures include voluntary, incentive-based programs that will reduce emissions from both existing and new development in the communities. Other measures establish mandates for new development, either pursuant to state regulations or through existing programs. Local governments will also use CA2020 as a tool to communicate and solidify their priorities within their communities.

CA2020 also includes GHG reduction measures that will be implemented by regional entities that can provide some services and resources on behalf of *all* communities more efficiently than the individual communities can on their own, especially the smaller cities. These regional measures are a critical part of CA2020. For example, the Community Choice Aggregation measure encourages residents and businesses to participate in SCP, which provides electricity with lower carbon content than the state's RPS. Other regional entities included in CA2020 are RCPA, Sonoma County Transportation Authority, Sonoma County Agricultural Preservation and Open Space District, and the Sonoma County Energy Independence Program. There are 16 regional measures to reduce GHG emissions, as discussed further in Chapter 3, *Reducing Community Emissions*.

Successful implementation of these actions will require commitment from regional agencies, all communities and their various departments, community groups, the development community, and residents and businesses. For this plan to be successful, RCPA, regional entities, and communities will adaptively manage implementation of CA2020 to ensure that the countywide GHG reduction target is met and that measures are implemented as efficiently as possible. Accordingly, RCPA and communities may revise measures or add new measures to ensure that the region achieves its 2020 reduction target. If adopted and implemented prior to 2020, new federal

programs that achieve local GHG emissions reductions beyond state and local mandates may also be added to CA2020.

Sector-based Emissions Reductions

GHG emissions inventories and reduction measures are grouped together into "sectors" that enable an organized, countywide look at the human activities that contribute the most GHG emissions and help focus actions where they can have the greatest emissions reduction. CA2020 looks at the following five community sectors.

- **Building Energy** includes emissions from electricity generation and combustion of natural gas and other fuels (e.g., propane, wood).
- **Transportation, Land Use, and Off-road Equipment** includes emissions from on-road vehicle fossil fuel combustion as well as emissions from equipment (e.g., construction equipment) and off-road vehicles.
- **Solid Waste** includes CH_4 emissions from decomposing organic matter in landfills.
- **Water Conveyance and Wastewater Treatment** includes energy-related emissions from water supply pumping and CH_4 and N_2O emissions from the wastewater treatment process.
- **Livestock and Fertilizer** includes N_2O emissions from fossil-fuel based fertilizer and CH_4 and N_2O emissions from livestock and manure management. Other agriculture-related emissions are accounted for in the other sectors. For example, emissions from traffic related to wineries or grape growing are included in the Transportation sector.

This sector-based approach is the foundation for the analyses in Chapter 2, *Greenhouse Gas Emissions in Sonoma County*, and Chapter 3, *Reducing Community Emissions*. These sectors are also the organizing principle in Chapter 5, *Community Greenhouse Gas Profiles and Emissions Reductions for 2020*.

1.3.2 Putting this Climate Action Plan to Work

Plan Adoption by RCPA, Cities, and County

CA2020 reflects an innovative, collaborative approach to responding to climate change. Individual cities and counties throughout the state have adopted CAPs specific to their communities, but CA2020 takes a truly regional (countywide) approach that coordinates the climate protection activities of all the cities and the County to achieve a shared GHG reduction goal. This approach recognizes that, by working together, Sonoma County's communities can achieve greater HG reductions, and do it more efficiently than if each city and the County acted on their own.

The collaborative, regional approach also improves consistency among the participating local agencies. This similarity will help home and business owners who are planning projects or renovations in the cities and the county.

As the lead agency, RCPA will adopt the CAP first (including certification of the Environmental Impact Report prepared for CA2020). Following adoption by RCPA, each city and the County will adopt its portion of CA2020 (see Chapter 5, *Community Greenhouse Gas Profiles and Emissions Reductions for 2020*) in a form appropriate to that community. Local adoption could take the form of a General Plan amendment, ordinance adoption, resolution, or some combination thereof.

Once adopted, the cities, County, and regional agencies will implement the measures each has committed to in their respective CAP adoption processes.

Implementation Framework

Sonoma County communities have set an ambitious target for GHG emissions reduction, one that will require decisive and rapid action by the local partners. RCPA will coordinate and facilitate implementation actions by the cities and the County, and by regional agencies (e.g., transit, energy, waste). RCPA's role will include aggregating funding opportunities to leverage federal, state, and regional grants; providing technical assistance to local partners; developing shared tools and inter-community efficiencies; and accepting overall accountability for CA2020 implementation.

Each city and the County will develop its own implementation team for the actions that will occur at the local government level. This will include designating a CA2020 Coordinator for each community and an internal implementation structure scaled and organized appropriately to each local agency. Among other things, the local CA2020 Coordinator will serve as the liaison between the city/County and RCPA.

Given the immediacy of the 2020 GHG reduction target, timing is an important factor for plan implementation. The CA2020 implementation plan organizes GHG reduction measures into three groups, based on the lead time needed for each measure in order to achieve results by 2020.

Please refer to Chapter 4, *Implementation*, and Appendix C for additional information regarding implementation and the lead entities for each measure.

Monitoring and Adaptive Management

How will Sonoma County local governments, residents, and business know if their GHG reduction efforts are effective? How can the County adapt to changing technologies, regulations, state (or federal) policies, and community behavior changes? Not only will RCPA and local partners need to track implementation of the local and regional reduction measures called for in CA2020, but the comprehensive nature of CA2020 will require regular reassessment of community GHG emissions and the overall direction of CA2020. To accomplish this, CA2020 calls for two interim GHG emissions inventories before 2020: one based on 2015 emissions data and the other based on 2018 data. The RCPA Board will also conduct a mid-course review of overall CA2020 effectiveness to allow time for changes that may be needed to stay on target. Where program tracking and inventory updates indicate that CA2020's emissions-reduction strategies are not as effective as

originally projected, RCPA will work with local partners to adaptively manage CAP implementation and stay on target, including updating or amending CA2020, if warranted.

Equally important, the RCPA and its members will report to the community on the results of the interim inventories and the mid-course review. Periodic public meetings and presentations to stakeholder groups will occur and other outreach activities, including a public website and email flyers, will be implemented to educate, engage, and empower the community.

Finally, CA2020 is part of a much longer-term effort that will be needed to reduce GHG emissions in Sonoma County. As noted earlier, CA2020 focuses on relatively short-term actions to reduce emissions by 2020 to a degree that is well beyond current state mandates (AB 32). However, even with the ambitious GHG reduction goal in CA2020, further actions will be needed to meet longer-term goals. Therefore, in adopting this CAP, RCPA will also adopt long-term goals to reduce GHG emissions by 40% (compared to 1990) by 2030 and by 80% by 2050. Although the measures in CA2020 will continue to achieve emissions reductions after 2020 and establish a trajectory for reaching longer-term goals, another phase of climate action planning will be needed to meet the goals for 2030 and 2050. This next phase will build on the measures in CA2020, informed by monitoring and adaptive management, and take advantage of new technologies and climate protection science that will be available in the future.

The Role of New Development in GHG Reduction

Sonoma County's population and economy will continue to grow between now and 2020, and beyond. Some of that growth will result in new development, either on land that is now vacant or as redevelopment with new or more intensive land uses. This new development will be a source of additional GHG emissions in 2020, although emissions related to existing development and activities will remain by far the largest source of GHG emissions. By 2020, new development will account for about 5% of total countywide GHG emissions; existing development and activities will account for 95% of countywide emissions. Emissions from new development are calculated as the growth in emissions from 2016 to 2020, based on socioeconomic forecasts and other emission projection methods (see Chapter 2). In other words, 2020 emissions are estimated to be 5% higher than 2016 emissions.

To ensure that regional GHG emissions are reduced to 25% below 1990 levels, CA2020 accounts for additional emissions from new development in the target inventory for 2020. Meeting the community-wide 2020 GHG reduction target requires new development to be consistent with climate goals by implementing measures that will minimize new GHG emissions. To accomplish this, a "New Development Checklist" (see Appendix A) can be used in the entitlement and permitting process at each jurisdiction that adopts the plan. New development projects that incorporate applicable checklist measures will not only have lower GHG emissions than similar projects had in the past, but they will also contribute to reaching the GHG reduction target set forth in CA2020 by ensuring that emissions from new development do not exceed the GHG "budget" allocated to new development in the 2020 target. Development projects consistent with

this CAP may also take advantage of the permit streamlining available under the California Environmental Quality Act (CEQA) (see Section 1.5).

1.3.3 How Can Sonoma County Residents Help?

Learn about their Household Carbon Footprint

The everyday activities of Sonoma County residents, including driving a vehicle, using electricity and natural gas to light and heat their homes, and throwing away household garbage, result in GHG emissions. Many of these emissions are accounted for in the GHG inventory prepared for this CAP, while others occur elsewhere due to the consumption of goods and services in Sonoma County. Residents can learn about their household carbon footprint and how they can reduce GHG emissions through their own actions—such as driving an electric vehicle, installing solar, or buying electricity from SCP. Cool California (http://www.coolcalifornia.org/) offers a user-friendly tool that allows residents to calculate household emissions by answering questions relating to travel, housing, food, and shopping habits. After completing the questionnaire, residents receive a personal action plan with tips and actions to help reduce their household carbon footprint and save money.

Participate in Programs to Reduce Local Emissions

The good news is that while human activities are a major climate change driver, we can also be part of the solution. Once county residents take inventory of their household carbon footprints and better understand their contribution to climate change, they can start taking actions to reduce household GHG emissions and improve their economic picture, thereby helping to meet the countywide GHG reduction target. Sonoma County residents can make impactful choices and changes in their daily lives such as changing light bulbs to compact fluorescents or light-emitting diodes, buying energy-efficient (ENERGY STAR) appliances, heating and cooling smartly, sealing and insulating their homes, reusing and/or recycling materials that might otherwise be thrown away, using water more efficiently, composting food scraps, and purchasing clean power (for more information see http://www3.epa.gov/climatechange/wycd/home.html).

Some of these individual or household actions will be facilitated through the regional or local programs and strategies presented in CA2020. Other actions are based more on individual commitment and choice. For example, individuals can learn about and make purchases that consider the carbon footprint and durability of household goods. This might include buying items made from local, renewable materials or that minimize packaging and shipping. Residents can also make low-carbon lifestyle choices, such as walking or biking, using public transportation, or eating less meat and more local vegetables.

Here are a few of the resources available to Sonoma County residents to help make these changes.

- The Energy Independence Program is a County of Sonoma Energy and Sustainability Division program that serves county residents and businesses as a central clearinghouse of

information about energy efficiency, water conservation, and solar energy improvements. It offers tools to property owners and tenants to find the information, resources, rebates, contractors, and financing that fits their situation. See more at: http://sonomacountyenergy.org/homepage/#sthash.3HWfDTmZ.dpuf.

- Energy Upgrade California: Home Upgrade takes a "whole house" approach to addressing home energy waste through building science, pre- and post-project testing, and energy performance analysis to provide maximum energy efficiency results. More information can be found at (707) 565-6470 or http://bayareaenergyupgrade.org.
- Windsor Efficiency PAYS: Windsor residents and businesses can take advantage of the Windsor Efficiency PAYS program, which provides water- and energy-saving upgrades for Windsor residential properties that provide immediate utility bill savings, new water/energy saving appliances, and drought-resistant landscaping—with no upfront cost or debt. See more at: http://sonomacountyenergy.org/residential-programs/#sthash.2VBjpMOi.dpuf.
- SCP is Sonoma County's official electricity provider, reducing costs and environmental impacts of energy use for customers throughout Sonoma County. By participating in CleanStart, SCP's default service, participants receive 36% renewable power. If residents or businesses participate in EverGreen, they will receive 100% local renewable power for a premium price.

CA2020 also includes several *Advanced Climate Initiatives* that, among other things, will focus on working with Sonoma County residents to reduce consumption-based emissions. See Chapter 3 for more information on these Advanced Climate Initiatives.

1.4 Public Outreach and Community Engagement

CA2020 was prepared with input from community members, elected officials, and staff from the partner agencies. Ten open house-style public workshops were held, including one in each city. These meetings solicited public input on the types of reduction measures that should be included in CA2020. The role of local governments in addressing climate change and reducing GHG emissions was also discussed.

RCPA also provided an online survey that was distributed by email and social media. Additional focus groups and meetings were held with local businesses, agriculture, and service groups. Presentations and updates were given to city and town councils and the Board of Supervisors throughout the project development process, and regular updates were provided to the RCPA Board. The RCPA board held two public study sessions prior to development of CA2020.

The community dialogue that has begun with preparation of this plan will continue throughout implementation of the GHG emissions-reduction measures.

All comments received from the community and the Stakeholder Advisory Group (see below) are documented in Appendix F. Many of the comments support GHG reduction measures that are now

included in CA2020. For example, enhanced transit service, expanded bike and pedestrian networks, and promotion of electric vehicles were strongly supported as part of the CA2020 strategy to reduce transportation emissions. Likewise, many comments supported building energy retrofits, distributed renewable energy generation, and sustainable agricultural practices.

The full range of GHG-reduction approaches suggested in public comments is, not surprisingly, extremely varied and generally very forward looking. For example, commenters suggested requiring point-of-sale energy audits, zero-net new water use in new developments, local government divestiture from fossil fuel investments, and greater focus on schools and youth. The measures included in CA2020 represent a subset of the ideas heard from the community. As noted throughout this plan, CA2020 is one step on a long-term path to dramatically reduced GHG emissions. Some of the suggestions gathered as part of the community outreach effort that are not included in CA2020 may very well find a place in future climate action planning in Sonoma County.

Lastly, it is important to acknowledge that a small but vocal segment of the community disagrees with the scientific consensus about the threat posed by global climate change and opposes governmental action to reduce emissions.

1.4.1 Stakeholder Advisory Group

To help guide the process, the RCPA Board of Directors selected a Stakeholder Advisory Group to represent a diversity of viewpoints and technical expertise from each community. The main role of the Advisory Group was to work with local agency staff to develop a CAP that will have broad community support for the GHG emissions-reduction programs and measures needed to meet Sonoma County's ambitious target. Three representatives from each city and two representatives from each county supervisorial district were selected; some representatives had input from city councils, though none were elected officials themselves.

The Stakeholder Advisory Group sought representation from a broad spectrum of interests, including renewable energy, agriculture, viticulture, business, community non-profits, the environment, transportation, social justice, environmental justice, real estate, health, economic development, education, open space, waste, water, and building efficiency.

The Stakeholder Advisory Group met five times at key milestones during the project. All meetings were open to the public and each meeting included an opportunity for the public to provide comments. Several ad hoc working groups from the Stakeholder Advisory Group were also convened during the development of the draft CAP to review detailed assumptions for certain sectors.

1.5 Relationship between the CAP and CEQA

The cities of Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Sebastopol, Sonoma, and Windsor and the County of Sonoma will use CA2020 to comply with project-level GHG impact

analysis requirements under CEQA. Santa Rosa will continue to use its adopted CAP for this purpose.

The State CEQA Guidelines (Section 15183.5) allow the GHG impacts of future projects to be evaluated using an adopted plan for reduction of GHG emissions, like CA2020, provided that the plan meets specific requirements. The six requirements specified in the State CEQA Guidelines are listed below with CA2020's compliance described in *italics*.

1. Quantify GHG emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area. *CA2020 quantifies GHG emissions from all primary sectors within county jurisdictions for 1990, 2010, 2015, 2020, 2040, 2030, and 2050*.
2. Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable. *CA2020 establishes a countywide GHG emissions target of 25% below 1990 levels by 2020, a target that goes well beyond the requirements of AB 32 and puts Sonoma County on a trajectory to achieve the even greater GHG reductions needed in the future. CA2020 includes a GHG emissions budget for new development that will ensure that the countywide reduction target is met, even with projected population and economic growth. The GHG reduction measures in CA2020 will reduce project-specific emissions and thereby ensure that the new-development share of total future emissions is not exceeded. Reducing and limiting emissions from new development is part of an overall strategy that substantially reduces emissions countywide and, therefore, contributions from new development that is consistent with CA2020 would not be cumulatively considerable.*
3. Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area. *CA2020 analyzes community emissions, by sector, for the partner communities, including emissions from projected growth and development expected by 2020 and beyond.*
4. Specify measures or a group of measures, including performance standards that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level. *CA2020 includes specific measures to achieve the overall reduction target (see Chapter 3 and Appendix C)*.
5. Establish a mechanism to monitor the plan's progress toward achieving the H emissions level and to require amendment if the plan is not achieving the specified level. *CA2020 includes periodic monitoring of plan progress (see Chapter 4)*.
6. Adopt the GHG emissions reduction plan in a public process following environmental review. *As described in Section 1.3.2 above, a Programmatic Environmental Impact Report will be prepared for CA2020 and the CAP itself will be adopted first by RCPA, followed by adoption of community-specific portions by each local partner. The adoption process will include public outreach and public hearings.*

Once CA2020 is adopted, it may be used in the cumulative impacts analysis of later projects, a process known in CEQA as "tiering." Tiering from the CAP potentially eliminates the need to prepare a quantitative assessment of GHG emissions on a project-by-project basis, which can help

streamline the environmental review and permitting processes for these projects. To accomplish this, future project-specific environmental documents must identify all applicable CA2020 measures and ensure that they are binding and enforceable by incorporating measures into the project design or identifying them as mitigation measures. Future projects that incorporate applicable CA2020 actions will not have a cumulatively considerable impact related to GHG emissions and climate change (unless substantial evidence warrants a more detailed review of project-level GHG emissions).

Appendix A provides a compliance checklist template to be adapted and modified for use by local agency planning staff to assist in determining a project's consistency with CA2020 for the purposes of CEQA tiering. Discretionary projects that utilize the checklist to demonstrate consistency with all applicable mandatory local or regional measures in CA2020 can conclude that their impacts related to GHG emissions would be less than significant under CEQA because the project would be consistent with a qualified GHG reduction plan under State CEQA Guidelines Section 15183.5.